



# Lowerhouse Junior School

## Design & Technology Overview Sheet



### Year 4 – Pulleys – create a pulley system



**Key Learning:** Pupils who are **secure** will be able to:

#### **Mechanical systems - Pulleys**

- **Develop vocabulary related to the project.**
- **Use mechanical systems such as gears and pulleys.**
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#### **Design**

Develop more than one design or adaptation of an initial design.

Plan a sequence of actions to make a product.

Record the plan by drawing using annotated sketches and exploded diagrams

Think ahead about the order of their work and decide upon tools and materials.

Propose realistic suggestions as to how they can achieve their design ideas.

Consider aesthetic qualities of materials chosen.

Use CAD where appropriate.

#### **Make**

- Prepare pattern pieces as templates for their design.
- Cut slots.
- Cut internal shapes.
- Select from a range of tools for cutting shaping joining and finishing.
- Use tools with accuracy.
- Select from techniques for different parts of the process.
- Select from materials according to their functional properties.
- Plan the stages of the making process.
- Use appropriate finishing techniques.

#### **Evaluate**

- Investigate similar products to the one to be made to give starting points for a design.
- Draw/sketch products to help analyse and understand how products are made.
- Research needs of user.
- Identify the strengths and weaknesses of their design ideas in relation to purpose/user.
- Decide which design idea to develop.
- Consider and explain how the finished product could be improved.
- Discuss how well the finished product meets the design criteria of the user.

Investigate key events and individuals in Design and Technology

#### **Learning Intentions**

Lesson 1: LI: To understand what a pulley is and how they work.

Lesson 2: LI: To research a range of pulley systems.

Lesson 3: LI: To design my final product.  
 Lesson 4: LI To plan my final product.  
 Lesson 5: LI: To make my final product.  
 Lesson 6: LI: To evaluate my final product.

#### Overview:

Lesson 1:  
 Explain what a pulley system is and what it is used for.  
 Lesson 2:  
 Research a range of different pulley systems.  
 Lesson 3:  
 Design and label your own pulley system.  
 Lesson 4:  
 Plan my final product using an exploded diagram.  
 Lesson 5:  
 Make your own pulley system  
 Lesson 6:  
 Evaluate your pulley system.

#### Cross Curricular Links

**Links to history Ancient Egypt**

#### Key Vocabulary

Pulley – A device using a rimmed wheel, axle and rope system which makes it easier to lift heavy objects or move things from one place to another  
 Load – The quantity or weight that can be carried at one time by a specified means. E.g. a lorry load.  
 Rotation- The action or process of rotating (turning) on an axis or centre.  
 Hoist – To lift or raise.  
 Axle- A pin or shaft on or with which a wheel or pair of wheels revolves.  
 Motion - An act, process or instance of changing place: a movement.

#### Resources

**Plastic bottle, cotton reel, straws, string, cardboard  
 Small container**